A STUDY FOR COMPARISON OF CAREGIVER BURDEN AND BEHAVIORAL AND PSYCHOTIC SYMPTOMS IN FRONTOTEMPORAL DEMENTIA AND ALZHEIMER'S DEMENTIA

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Abstract

Background: Dementia is a syndrome that results in the progressive deterioration of cortical functioning including comprehension, memory and thinking. Alzheimer's disease (AD) is the most common cause of dementia accounting for 50-75% and Front temporal dementia (FTD) around 5-10% of dementia cases. Behavioral and psychological symptoms (BPSD) form a major part of the presentation of the dementia patients at psychiatric clinic and play a crucial role in caregiver distress which in turn is a major determinant of welfare of dementia patients in society.

Objective: Present study is to compare care giver burden and BPSD in patients with FTD and AD.

Method: We compared 41 patients', of which 15 of FTD and 26 of AD with respect to the Neuropsychiatric Inventory (NPI), Hindi Mental State Examination (HMSE) and Zarit Burden Inventory (ZBI) at SMS Medical College, Jaipur.

Results: FTD patients obtained a significantly higher NPI behavioral score And ZBI than AD patients and mean value of HMSE is higher in FTD than AD. Significant positive correlation between NPI and ZBI is observed in both groups. Significant positive correlation between HMSE and ZBI is found in FTD obtained,

Conclusion: More behavioral problem in FTD makes it difficult for patient's caregiver to manage patients at home this leads to rapid institutionalization, although severity of dementia is less.

Keywords: Alzheimer's disease, Front temporal dementia, BPSD, Caregiver Burden

Introduction

Dementia is a syndrome due to disease of brain, that is the chronic and progressive nature, in which there is deterioration of cortical functioning including comprehension, orientation, calculation, learning capacity, language, memory, thinking and judgment. Alzheimer's disease (AD) is a primary degenerative cerebral disease with characteristic neuropathological and neurochemical feature. It is the most common cause of dementia accounting for 50-75% of all dementia. Frontotemporal dementia (FTD) accounts for 5-10% of cases. There are three types of frontotemporal dementia described. The Behavior variant, in which the changes in personality and social behavior dominates due involvement of orbito basal frontal lobe. Semantic variant, in which involvement of dominant lateral temporal regions causing breakdown in conceptual database, present as fluent aphasia of progressive nature. Progressive nonfluent type, characterized by phonological and syntactic errors due to involvement of dominant perisylvian regions.[1] Frontotemporal dementia (FTD) is associated with increase caregiver distress and it has been associated with higher incidences of many symptoms including impulsivity,

compulsive behaviors, hypersexuality, and verbal outbursts.[2] Behavioral and psychological symptoms (BPSD) form a major part of the presentation of the dementia patients at psychiatric clinic and plays a crucial role in caregiver distress which in turn is a major determinant of welfare of dementia patients in society. Some researchers use the concepts of objective and subjective burden, for caregivers, [3] Objective burden refers to the practical problems associated with caregiving such as continuous nursing care. Subjective burden, also called strain, refers to the emotional reaction of the caregiver (e.g., anxiety and depression).

Materials and Methods

Study was conducted among 41 patients of dementia of which 15 were of FTD and 26 were of AD attending Psychiatry department, SMS Medical College, Jaipur from 1st April 2019 to 30th June 2019. After the formal approval from ethical committee. We took written consent for the study and then fill the data collected included gender, age, locality, religion and total duration of illness.

Instruments:

HINDI MENTAL STATUS EXAMINATION (HMSE):- is a screening test, which is used to assess cognitive impairment. It is a tool developed by Indo-US Cross-National Dementia Epidemiological Study (Ganguli et al., 1995).[4] The severity of the cognitive dysfunction is also assessed by this scale, the scores which were categorized by as mild (HMSE = 19-24), moderate (HMSE = 10-20), and sever (HMSE = 0-10). It is a modified form of MMSE (Mini Mental Status Examination).

NEUROPSYCHIATRIC INVENTORY- (NPI) is used to obtain information on the presence of psychopathology in patient with brain disorder; it is completed by the caregiver and starts with a screening question to identify the presence of the behavioral disturbance in question. Ten behavioral and two neuro-vegetative areas are included in the NPI, that includes, delusion, hallucination, agitation, depressions , anxiety, elation, apathy, disinhibition, irritability, aberrant motor behavior, sleep and night time behavior and appetite and eating disorder (Cummings, 1997).[5]

THE ZARIT BURDEN INTERVIEW (ZBI) - Is a standard, validated tool was used to assess the burden on family caregivers (Cronbach's alpha = 0.92). It is a 5-point (0-4; a higher score denotes higher burden), 22-item Likert scale, which assesses five main domains of burden namely health, psychological well-being, finances, social life and relationship with the patient. The final scores range from 0 to 88. It is further stratified into four categories, that is, a score of 0-20 indicates no or minimal burden, 21-40 mild to moderate burden, 41-60 moderate to severe burden and 61-88 indicates severe burden (Zarit et al.1980). [6]

Results:

Table 1: Sociodemographic profile

Variables'	FTD(n=15)	AD (n=26)	P Value
Age	66.80±5.88	74.05±8.16	0.009
Sex	Male	10	0.833
	Female	5	
Locality	Rural	9	0.537
	Urban	6	
Religion	Hindu	11	0.829
	Muslim	4	
TDI	2.73±1.33	3.75±1.61	0.081

Table 1 shows the mean age of 15 patients in the FTD was 66.80±5.58, which was lower than that of the 26 patients in the AD 74.05±8.16, that difference reach significance level ($p = 0.009$). The two groups were not significantly different in terms of sex, locality, religion and total duration of illness.

Table 2: Comparison of different variable in both groups

Variables'	FTD	AD	P Value
HMSE	19.13±2.92	16.81±6.75	0.065
NPI	47.40±4.72	36.85±7.75	<0.001
ZBI	68.80±5.29	51.50±9.57	<0.001

Table 2 shows the HMSE score was slightly higher in FTD subtype compare to AD subtype but it was not significant. (FTD 19.13±2.92, AD 16.81±6.75; $p = 0.065$) Patients with FTD obtained a significantly higher NPI score than AD patients (FTD 47.40±4.72, AD 36.85±7.75; $p = <0.001$). Also the ZBI score was significantly higher for FTD than for AD caregivers (FTD caregivers: 68.80±5.29, AD caregivers: 51.50±9.57; $p = <0.001$).

Table 3: correlations between npi and zbi

	FTD	AD
Spearman's Coefficient	+0.535	+0.714
P value	0.008	<0.001

Table 3 shows significant positive correlation between NPI and ZBI is observed in both groups.

Table 4: correlations between hmse and zbi

	FTD	AD
Spearman's Coefficient	+0.628	-0.385
P value	0.012	0.094

Table 4 shows non significant negative correlation between HMSE and ZBI is found in AD, while interestingly in FTD significant positive correlation obtained.

Discussion

In Our study we observe that the FTD was characterized by a much lower mean age than AD is consistent with a previous study (Kaiser & Panegyres, 2006).[7] This is understandable because in FTD, the fronto-subcortical networks responsible for various behavioral symptoms are involved early. This study suggests that significant differences exist in caregiver burden and BPSD between two types of dementia and that BPSD contribute to caregiver burden. The behavioral changes noted in FTD patients in this study were similar to those observed in previous reports (Diehl, Forstl, Jansen, & Kurz, 2004; Tanaka et al., 2015).[8,9] In this study we found that the caregivers of FTD patients had higher burden scores than caregivers of AD patients. Riedijk et al.,[10] like us, found that the caregivers of patients with FTD experienced a greater burden than those of patients with AD.

The findings of our study have important implications for caregivers of FTD and AD patients. It is crucial that caregivers have the opportunity to learn and accept

BPSD and its accompanying behavioral changes. This will lead caregivers towards an acceptance of the diagnosis, thereby allowing them to adjust their expectations and helping them to overcome the difficulties associated with caring for those suffering from neurodegenerative disease.

Conclusion

This study highlights differences in caregiver burden and BPSD between the two dementia subtypes. Although severity of dementia is less, in FTD, the clinical presentation is dominated by different kinds of behavioral problems which not only make it difficult for caregivers to manage individuals at home but also increase frequent institutionalization. Such observations indicate the need for formulation of programs that not only provide support to families of dementia patients but also focus on management of BPSD on an individual level.

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